



# IECEx Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: IECEx PTB 06.0054X

Issue No: 1

Certificate history:

Issue No. 1 (2017-07-17)

Issue No. 0 (2006-11-02)

Status: **Current**

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Date of Issue: **2017-07-17**

Applicant: **SAMSON AG Mess- und Regeltechnik**  
Weismuellerstrasse 3  
D-60314 Frankfurt am Main  
Germany

Equipment: **Bus-powered field I/p-Positioners types 3730-41..., 3730-51..., 3730-45..., 3730-55..., 3730-48... and 3730-58...**

Optional accessory:

Type of Protection: **General Requirements, Intrinsic Safety "I", Equipment protection by type of protection "n", Equipment dust ignition protection by enclosure "t"**

Marking:

Ex ia IIC T6...T4 Gb and Ex ia IIIC T80 °C Db

or

Ex tb IIIC T80 °C Db

or

Ex nA IIC T6...T4 Gc and Ex tc IIIC T80 °C Dc

Approved for issue on behalf of the IECEx  
Certification Body:

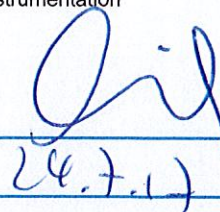
Dr.-Ing. Frank Lienesch

Position:

Head of Department "Explosion Protection in Sensor Technology and Instrumentation"

Signature:  
(for printed version)

Date:

  
24.7.17

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

**Physikalisch-Technische Bundesanstalt (PTB)**  
Bundesallee 100  
38116 Braunschweig  
Germany





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Manufacturer: **SAMSON AG Mess- und Regeltechnik**  
Weismuellerstrasse 3  
D-60314 Frankfurt am Main  
Germany

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

## STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

<b>IEC 60079-0 : 2011</b> Edition:6.0	Explosive atmospheres - Part 0: General requirements
<b>IEC 60079-11 : 2011</b> Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
<b>IEC 60079-15 : 2010</b> Edition:4	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
<b>IEC 60079-31 : 2013</b> Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

## TEST & ASSESSMENT REPORTS:

*A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in*

### Test Report:

[DE/PTB/ExTR06.0086/00](#)

[DE/PTB/ExTR06.0086/01](#)

### Quality Assessment Report:

[DE/TUN/QAR06.0011/06](#)





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## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

The positioners type 3730-41..., 3730-51..., 3730-45... and 3730-55... are communication-capable, bus-powered field devices which are used to assign a valve position to a control signal. The bus interface connection (bus-coupling) can be performed according to the FISCO-concept for both specifications, Profibus PA and Foundation<sup>TM</sup> Fieldbus. They are mounted onto levitation and slewing actuators. Non-flammable media are used as pneumatic auxiliary power. The equipment is intended for the application inside the hazardous area.

The positioners type 3730-48... and 3730-58... are communication-capable, bus-powered field devices which are used to assign a valve position to a control signal. They are mounted onto levitation and slewing actuators. Non-flammable media are used as pneumatic auxiliary power. The equipment is intended for the application inside the hazardous area.

For further information see annexe.

### SPECIFIC CONDITIONS OF USE: YES as shown below:

The program-interface intended for connection to the positioners of types 3730-48... and 3730-58... shall be installed outside of the hazardous area.

For type of protection "nA" applies:

If the program-interface adaptor is connected to a circuit of type of protection "nA" a fuse according to IEC 60127-2/II, 250 V F or according to IEC 60127-2/VI, 250 V T with a nominal fuse current of max.  $I_N \leq 40$  mA shall be connected in series to the Vcc-circuit. The fuse shall be arranged outside of the hazardous area.



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## DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

The changes concern the update of the applied standards, the electrical data, the adding of dust ignition protection by enclosure, the adding of dust ignition protection by Intrinsic Safety, the adding of Equipment protection by type of protection "nA", the adding of new types and the inner construction.





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**Additional information:**

for further information see annex

**Annex:**

[Annex IECEx PTB 06.0054X-01.pdf](#)



Applicant's name.....: SAMSON AG Mess und-Regeltechnik  
Address .....: Weismüllerstrasse 3; 60314 Frankfurt, Germany  
Model/type reference .....: Types 3730-41..., 3730-51..., 3730-45..., 3730-55...,  
3730-48... and 3730-58...

**Thermal and electrical maximum values**

**Type 3730-41 and 3730-51:**

For relationship between temperature class and permissible ranges of the ambient temperature, reference is made to the following table:

Gas- or dust group	Temperature class	Permissible ambient temperature range
IIC	T6	-55 °C ... 60 °C
	T5	-55 °C ... 70 °C
	T4	-55 °C ... 80 °C
IIIC	not applicable	-55 °C ... 80 °C

For relationship between temperature class, permissible ranges of the ambient temperature, maximum short-circuit currents and maximum power for analyzing units with limit contacts (terminals 41/42), reference is made to the following table:

Temperature class	Permissible ambient temperature range	$I_0 / P_0$
T6	-55 °C ... 45 °C	52 mA / 169 mW
T5	-55 °C ... 60 °C	
T4	-55 °C ... 75 °C	
T6	-55 °C ... 60 °C	25 mA / 64 mW
T5	-55 °C ... 80 °C	
T4	-55 °C ... 80 °C	

BUS-connection-signal circuit ..... type of protection Intrinsic Safety Ex ia IIC / IIB / IIIC  
(terminals 11/12) only for connection to a certified intrinsically safe circuit

For relationship between type of protection and electrical data, reference is made to the following table:





Maximum values:

FISCO power supply	FIELDBUS power supply general	
Ex ia IIC / IIB / IIIC	Ex ia IIC / IIIC	Ex ia IIB / IIIC
$U_i = 17,5 \text{ V DC}$	$U_i = 24 \text{ V DC}$	$U_i = 24 \text{ V DC}$
$I_i = 380 \text{ mA}$	$I_i = 360 \text{ mA}$	$I_i = 380 \text{ mA}$
$P_i = 5,32 \text{ W}$	$P_i = 1,04 \text{ W}$	$P_i = 2,58 \text{ W}$

$C_i = 5 \text{ nF}$   
 $L_i = 10 \text{ } \mu\text{H}$

Limit contact, inductive ..... type of protection Intrinsic Safety Ex ia IIC / IIIC  
(terminals 41/42) only for connection to a certified intrinsically safe circuit

Maximum values:

$U_i = 16 \text{ V}$   
 $I_i = 52 \text{ mA}$   
 $P_i = 169 \text{ mW}$

$C_i = 60 \text{ nF}$   
 $L_i = 100 \text{ } \mu\text{H}$

resp.

$U_i = 16 \text{ V}$   
 $I_i = 25 \text{ mA}$   
 $P_i = 64 \text{ mW}$

$C_i = 60 \text{ nF}$   
 $L_i = 100 \text{ } \mu\text{H}$

Forced deaeration ..... type of protection Intrinsic Safety Ex ia IIC / IIIC  
(terminals 81/82) only for connection to a certified intrinsically safe circuit

Maximum values:

$U_i = 28 \text{ V}$   
 $I_i = 115 \text{ mA}$

$C_i = 5.3 \text{ nF}$   
 $L_i$  negligibly low

Binary input 1 ..... type of protection Intrinsic Safety Ex ia IIC / IIIC  
(terminals 87/88) for connection to an active contact circuit

Maximum values:

$U_i = 30 \text{ V}$   
 $I_i = 100 \text{ mA}$

$C_i$  negligibly low  
 $L_i$  negligibly low



Binary input 2 ..... type of protection Intrinsic Safety Ex ia IIC / IIB / IIIC  
(terminals 85/86)

only for connection to a passive floating contact circuit

Maximum values:

$U_o = 5.88 \text{ V}$   
 $I_o = 1 \text{ mA}$   
 $P_o = 7.2 \text{ mW}$

For relationship between explosion group and permissible external capacitances and inductances, reference is made to the following table:

Ex ia IIC / IIIC	Ex ia IIB / IIIC
$C_o = 2 \mu\text{F}$	$C_o = 16 \mu\text{F}$
$L_o = 10 \text{ mH}$	$L_o = 1 \text{ H}$

$C_i$  negligibly low  
 $L_i$  negligibly low

Serial Interface ..... type of protection Intrinsic Safety Ex ia IIC / IIB / IIIC  
(programming socket BU)

Maximum values:

$U_o = 8.61 \text{ V}$   
 $I_o = 55 \text{ mA}$   
 $P_o = 250 \text{ mW}$

For relationship between type of protection and permissible external capacitances and inductances, reference is made to the following table:

Ex ia IIC / IIIC	Ex ia IIB / IIIC
$C_o = 0.61 \mu\text{F}$	$C_o = 4 \mu\text{F}$
$L_o = 9 \text{ mH}$	$L_o = 9 \text{ mH}$

resp.

only for connection to a certified intrinsically safe circuit

Maximum values:

$U_i = 16 \text{ V}$   
 $I_i = 25 \text{ mA}$   
 $P_i = 64 \text{ mW}$





$C_i$  negligibly low  
 $L_i$  negligibly low

External position sensor ..... type of protection Intrinsic Safety Ex ia IIC / IIIC  
(analog circuit board, pins p9, p10, p11)

Maximum values:

$U_o = 8.61 \text{ V}$   
 $I_o = 55 \text{ mA}$   
 $P_o = 250 \text{ mW}$

For relationship between type of protection and permissible external capacitances and inductances, reference is made to the following table:

Ex ia IIC / IIIC	Ex ia IIB / IIIC
$C_o = 0.61 \mu\text{F}$	$C_o = 4 \mu\text{F}$
$L_o = 9 \text{ mH}$	$L_o = 9 \text{ mH}$

$C_i = 730 \text{ nF}$   
 $L_i = 370 \mu\text{H}$

#### Type 3730-45... und 3730-55...:

The permissible range of the ambient temperature for dust groupe IIIC is  $-55^\circ\text{C} \dots 80^\circ\text{C}$ .

BUS-connection signal circuit ..... Nominal signal: 24 V DC  
(Terminals 11/12) ..... Rated voltage: 28 V

Binary input 1 ..... Nominal signal: 6 ... 30 V DC  
(Terminals 87/88) ..... Rated voltage: 30 V

Binary input 2 ..... only for connection to a passive floating  
(Terminals 85/86) ..... contact circuit

Limit contact, inductive ..... Nominal signal: 8 V DC, 8 mA  
(Terminals 41/42) ..... Rated voltage: 16 V

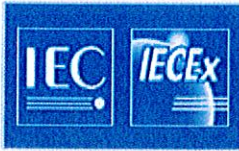
Forced deaeration ..... Nominal signal: 6 ... 24 V DC  
(Terminals 81/82) ..... Rated voltage: 28 V

#### 3730-48... and 3730-58...:

The permissible ambient temperature range for dust group IIIC is between  $-55^\circ\text{C} \dots 80^\circ\text{C}$ .

For the relationship between temperature class and permissible ranges of the ambient temperature for gas group IIC reference is made to the following table:





Temperature class	permissible ambient temperature range
T6	-55 °C ... 60 °C
T5	-55 °C ... 70 °C
T4	-55 °C ... 80 °C

BUS-connection signal circuit ..... (Terminals 11/12)	Nominal signal: Rated voltage:	24 V DC 28 V
Binary input 1 ..... (Terminals 87/88)	Nominal signal: Rated voltage:	6 ... 30 V DC 30 V
Binary input 2 ..... (Terminals 85/86)	only for connection to a passive floating contact circuit	
Limit contact, inductive ..... (Terminals 41/42)	Nominal signal: Rated voltage:	8 V DC, 8 mA 16 V
Forced deaeration ..... (Terminals 81/82)	Nominal signal: Rated voltage:	6 ... 24 V DC 28 V